

## Syllabus for the post of

**(1) Professor, Anatomy, Class-I (Advt. No.: 41/2019-20)**

**(2) Associate Professor, Anatomy, Class-I (Advt. No.: 62/2019-20)**

**(3) Assistant Professor, Anatomy, Class-I (Advt. No.: 99/2019-20)**

**Marks – 200**

**Questions – 200**

**Medium - English**

### **1. GROSS ANATOMY**

Gross Anatomy of entire body including upper limb, lower limb, thorax, abdomen, pelvis, perineum, head and neck, brain and spinal cord

### **2. Developmental Anatomy/Embryology**

General embryology: gametogenesis, fertilization, implantation and placenta, early human embryonic development. Systemic embryology: development of organ systems and associated common congenital abnormalities with teratogenesis, Physiological correlations of congenital anomalies.

### **3. HISTOLOGY AND HISTOCHEMISTRY**

#### **Cell Biology**

Cytoplasm - cytoplasmic matrix, cell membrane, cell organelles, cytoskeleton, cell inclusions, cilia and flagella, Nucleus - nuclear envelope, nuclear matrix, DNA and other components of chromatin, protein synthesis, nucleolus, nuclear changes indicating cell death. Cell cycle - mitosis, meiosis, cell renewal. Cellular differentiation and proliferation.

**Microscopic structure of the body:** Principles of light, transmission and scanning, electron, fluorescent, confocal and virtual microscopy. The systems/organs of body - Cellular organization, light and electron microscopic features, structure - function correlations, and cellular organization

### **4. NEUROANATOMY**

Brain and its environment, Development of the nervous system, Neuron and Neuroglia, Somatic sensory system, Olfactory and optic pathways,

Cochleovestibular and gustatory pathways, Motor pathways, Central autonomic pathways, Hypothalamo-hypophyseal system, Limbic system, Basal ganglia, Reticular system, Cross Sectional anatomy of brain and spinal Cord, Detailed structure of the central nervous system and its applied aspect

## **5. GENETICS**

Human Chromosomes - Structure, number and classification, methods of chromosome preparation banding patterns. Chromosome abnormalities, Autosomal and Sex chromosomal abnormalities syndromes, Molecular and Cytogenetics. Single gene pattern inheritance: Autosomal and Sex chromosomal pattern of inheritance, Intermediate pattern and multiple alleles, Mutations, Non-Mendelian inheritance, Mitochondrial inheritance, Genome imprinting, parental disomy, Multifactorial pattern of inheritance: Criteria for multifactorial inheritance, Teratology, Structure gene, Molecular Screening, Cancer Genetics-Haematological malignancies, Pharmacogenetics. Reproduction Genetics - Male and Female Infertility, Abortuses, Assisted reproduction, Preimplantation genetics, Prenatal diagnosis, Genetic Counseling and Ethics of Genetics, Principles of Gene therapy and its applied knowledge

## **6. IMMUNOLOGY**

Immune system and the cell types involved in defense mechanisms of the body. Gross features, cytoarchitecture, functions, development and histogenesis of various primary and secondary lymphoid organs in the body, Biological and clinical significance of the major histocompatibility complex of man including its role in transplantation, disease susceptibility/resistance and genetic control of the immune response., Common techniques employed in cellular immunology and histocompatibilitytesting, Molecular hybridization and PCR technology in immunology research particularly mechanism of antigen presentation, structural and functional relevance of the T cell receptor, genetic control of the immune response, Molecular basis of susceptibility to disease

## **7. APPLIED ANATOMY AND RECENT ADVANCES**

Clinical correlations of structure and functions of human body. Anatomical basis and explanations for clinical problems, Applications of knowledge of

development, structural (microscopy), neuro anatomy to comprehend deviations from normal. Recent advances in medical sciences which facilitate comprehension of structure function correlations and applications in clinical problem solving. Collection, maintenance and application of stem cells, cryobanking and principles of organ donation from recently dead bodies

## **8. SURFACE MARKING AND RADIOLOGY**

Surface marking of all regions of the body. Interpretation of normal radiographs of the body including special contrast procedures including barium studies, cholecystography, pyelography, salpingography. Normal CT Scan, MRI and Ultrasound.

- **Anthropology**

Different anthropological traits, Identification and use of Anthropological instruments.

- **Forensic Medicine:**

Identification of human bones from their remains and determination of sex, Age and height. for medico legal application of Anatomy.

## **9. OUTLINE OF COMPARATIVE ANATOMY OF THE WHOLE BODY AND BASIC HUMAN EVOLUTION**

## **10. RESEARCH METHODOLOGY.**

## **11. MEDICO LEGAL ASPECTS RELEVANT TO THE DISCIPLINE.**

## **12. INDIAN MEDICAL COUNCIL (PROFESSIONAL CONDUCT, ETIQUETTE AND ETHICS) REGULATIONS, 2002.**

## **13. CURRENT TRENDS AND RECENT ADVANCEMENTS IN THE FIELD OF ANATOMY.**